Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_

201 7.4 Special Right Triangles—Notes After Quiz

Use the Pythagorean Theorem to solve for x. Be sure to leave answers in Radical form! **You should notice a pattern here. If you see the pattern, you do not need to show all work.**

1.\_\_\_\_\_\_\_\_ 2.\_\_\_\_\_\_\_\_ 3.\_\_\_\_\_\_\_\_\_ 4.\_\_\_\_\_\_\_\_



5.\_\_\_\_\_\_\_\_ 6.\_\_\_\_\_\_\_\_ 7.\_\_\_\_\_\_\_\_\_ 8.\_\_\_\_\_\_\_\_





|  |  |  |
| --- | --- | --- |
| 45° | 45° | 90° |
| x | x | x |

Theorem 7.8—In a 45°-45°-90° triangle, the length of the hypotenuse is times the length of the leg.

9.\_\_\_\_\_\_\_\_ 10.\_\_\_\_\_\_\_\_ 11.\_\_\_\_\_\_\_\_ \*12.\_\_\_\_\_\_\_\_

Take an equilateral triangle with a side of 10. Drop an altitude. This creates a 30°-60°-90° triangle. It also splits the opposite side into 5 and 5. Use Pythagorean theorem to find the height.

NEW Pattern

Height = \_\_\_\_\_\_\_

Let’s look at the 30°-60°-90° triangle that is formed and use Pythagorean Theorem to solve for the missing side.

13.\_\_\_\_\_\_\_\_\_ 14.\_\_\_\_\_\_\_\_ 15.\_\_\_\_\_\_\_\_\_ 16.\_\_\_\_\_\_\_\_



Place the answers in the chart below, and look for a pattern.

17.\_\_\_\_\_\_\_\_ 18.\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | 30° | 60° | 90° |
| 13. | 9 |  | 18 |
| 14. | 2 |  |  |
| 15. | 10 |  |  |
| 16. | 3 |  | 6 |
| 17. | 5 |  | 10 |
| 18. | 1 |  | 2 |

19.\_\_\_\_\_\_\_\_ 20.\_\_\_\_\_\_\_\_ \*21.\_\_\_\_\_\_\_\_\_

Theorem 7.9—In a 30°-60°-90° triangle, the length of the hypotenuse is twice the length of the shorter leg, and the length of the longer leg is times the length of the smaller leg.

|  |  |  |
| --- | --- | --- |
| 30° | 60° | 90° |
| x | x | 2x |



y

x

The problems with a \* are more difficult because they don’t fit the mold perfectly. They require you to divide by either . I will review that below.

#12 You cannot leave it like this, so you must multiply by a “fancy” # 1. In other words, .

#21

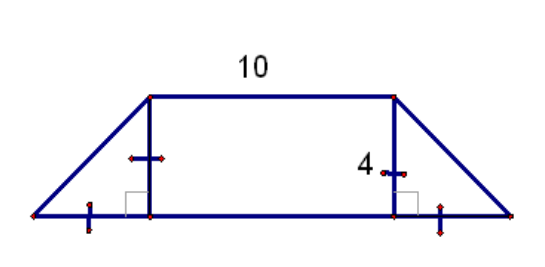
Example: BD = . Find AB and BC. (Hint: BD is in two right triangles. It’s opposite 60° in one, and opposite 30° in the other.)

|  |  |  |
| --- | --- | --- |
| 30° | 60° | 90° |
| x |  | 2x |
|  |  |  |
|  |  |  |

AB = \_\_\_\_\_

BC = \_\_\_\_\_

A rectangle and 2 isosceles right triangles form the trapezoid below. Find its perimeter. (Round to the nearest tenth.)



HW

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